TEACHERS' RETIREMENT BOARD

INVESTMENT COMMITTEE

SUBJECT: Draft of the 1999 Investment Management Plan

ITEM NUMBER: 9

ATTACHMENT(S): 1

ACTION: _____

DATE OF MEETING: September 1, 1999

INFORMATION: X

PRESENTER(S): Mr. Mitchell

EXECUTIVE SUMMARY

One of the Investment Branch objectives for the 1999/00 was to "Revise the Investment Management Plan to reflect the modifications (if any) in the strategic asset allocation, investment objectives, and investment structure".

CalSTRS' Investment Management Plan (Plan) serves as a blueprint for management of the investment portfolio. Each year, the Plan is revised to incorporate the changes that have occurred in investment policy or investment strategy as the result of individual Investment Committee decisions and actions.

Attachment 1 is the 1998 Investment Management Plan, which has been modified to incorporate changes in investment policy or investment strategy over the past eighteen months. The most substantial change was the substitution of "asset allocation" pages 6 through 10. All other changes to the Plan are shown by "shading" the deletions and "underlining" the additions.

This is the first of three scheduled presentations on the 1999 Investment Management Plan culminating in a scheduled approval at the November 1999 Investment Committee meeting. Suggestions and comments are encouraged with the intent of facilitating the exchange of ideas.

DRAFT OF
INVESTMENT MANAGEMENT PLAN

EXECUTIVE SUMMARY

The Investment Management Plan was developed within the context of the significant events which have occurred during the eighty five year history of California State Teachers' Retirement System ("System", "STRS"). The System was primarily on a pay as-you-go basis until 1972. Since that time, increased contributions coupled with rapid economic growth have been compounded in more than $90 billion of investment assets. This document represents the most recent update of STRS's Investment Management Plan. STRS's Investment Management Plan is updated to reflect the changes which have occurred in the investment strategy and policy as a result of implementation of various recommendations. In addition, the Investment Management Plan is updated to ensure that the factors that impacted initial decisions are still relevant in the current environment.

The California State Teachers' Retirement Board (Board) believes that to manage growth of assets in a prudent manner, it is necessary to establish a planning statement in the form of Investment Policies an Investment Management Plan under which the Investment Branch portfolio will operate. The Board has sole and exclusive fiduciary responsibility to administer the investment assets in a manner that will assure the prompt delivery of benefits and related services to the plan participants and their beneficiaries. As a public pension fund, System's The California State Teachers' Retirement System's (CalSTRS) is not subject to ERISA which that governs corporate pension plans. However, the System's CalSTRS investment decision making criteria is continues to be based on the "prudent expert" standard for which the ERISA prudence standards serve as a basis. Additionally, The California Constitution requires diversification of risk across asset classes and minimizing of employer costs.

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This document addresses general objectives governing the policies of the investment function and specific performance objectives. The general objectives are meant to provide a framework for the operation of the investment function. CalSTRS's performance objectives can be divided into objectives for the overall investment function and objectives for investment managers.

The asset allocation decision governs the allocation of the System's CalSTRS' assets between public and private, fixed income and equity. Strategic allocation of the System's CalSTRS' assets is the most important factor in the determination of the realized total rate of return. The investment staff and the System's general consultants worked together to create a variety of optimal asset allocation alternatives. Constraints placed on each asset category prevent unrealistic asset allocation scenarios from consideration

Strategic asset allocation targets are established in a variety of asset categories to achieve the identified performance objectives. In conjunction with the strategic asset allocation targets, tactical ranges provide flexibility to adapt to changing market conditions.

Subsequent to the establishment of strategic asset allocation targets, an investment structure was will be designed to guide and direct future investment decisions. In preparation of the investment structure Investment related issues addressed will included:

1. Active vs passive management including the relative percentage of each type. The relative amount of active and passive management

2. The number and types of internal and external managers. The relative amount of internal and external management

3. Monitoring and controlling The appropriate direct and indirect costs of each asset category

4. The appropriate reporting standards and time horizons

GENERAL INVESTMENT OBJECTIVES

One goal for The California State Teachers' Retirement System is to "maintain a financially sound Retirement System". Within this context, the following general investment objectives are designed to establish a framework for the operation of the investment function and are intentionally nonspecific.

1. CalSTRS's investment program must provide the means to pay benefits to its participants and their beneficiaries in the amounts and at the times called for through the investment of contributions and other fund assets.

2. Assets will be invested to produce an expected returns on investments which is based on levels of liquidity and investment risk that are prudent and reasonable under diverse circumstances. Such circumstances will change over time as new investment vehicles become available.

3. The reduction of CalSTRS's funding costs, within prudent levels of risk, is a consideration in the organization and structure of the investment portfolio.

4. Investment performance will be compared to other large private and public pension funds with special emphasis on comparisons with other large public funds.

5. Active and passive management fees, trading costs, and transaction related other expenses will be aggressively monitored and controlled. Reducing Reduction of the cost of managing CalSTRS's assets will increase portfolio return over time.

6. The Investment Branch will conduct an annual planning session including an estimate of cash flows and an updated financial projection highlighting any modifications to the performance objectives.

7. CalSTRS's investment program must operate in compliance with all applicable State and Federal laws as well as regulations concerning the investment of pension assets.

8. The asset structure must provide for diversification of risk between asset classes to manage the risk/return relationship through strategic asset allocation.

INVESTMENT PERFORMANCE OBJECTIVES

The general investment objectives designed a framework for the operation of the investment function. The performance objectives can be divided into two components: (1) performance objectives for the overall investment portfolio, and (2) performance objectives for the individual investment managers. CalSTRS incorporates both levels of analysis in its monitoring of the investment portfolio performance.

There are four performance objectives identified for the overall investment portfolio:

1. Relative to Strategic Asset Allocation Targets

2. Relative to Inflation

3. Relative to the Actuarial Rate of Interest

4. Relative to CalSTRS's Liabilities

The first objective identifies a comparative benchmark which that reflects CalSTRS's unique asset allocation policy. This performance objective is a composite of the target weighting for each asset category multiplied by the expected performance benchmark's return for that category. This performance number is compared to the actual asset allocation and actual total rate of return. Analysis This comparison identifies the contribution or detriment to performance caused by manager performance, market timing, and tactical asset allocation decisions.

The inflation related objective compares the investment performance against the rate of inflation as measured by the Consumer Price Index (CPI) plus 3.5 percent. The Consumer Price Index plus 2.0 percent is used in the calculation of the estimated salary increases for the members (teachers). The inflation measure provides a link to CalSTRS's liabilities.

The actuarial rate of interest is reviewed and monitored by the Board as a measure of the long-term rate of growth of CalSTRS's assets. The actuarial rate of interest varies according to market conditions with the current assumption of 8.0%. The current actuarial rate of interest is 8.0%. When adopting an actuarial rate of interest, the Board The actuary anticipates the investment portfolio will may achieve higher returns in some years and lower returns in other years.

The last liability related performance objective recognizes that liabilities are claims to CalSTRS's assets and must be paid in full and in a timely manner. The liabilities are a total of the future value claims of the CalSTRS's participants' benefit payments. The actuarial rate of interest is used to discount the future value of the CalSTRS's liabilities to calculate the funded ratio.

PERFORMANCE BENCHMARK

To facilitate the periodic reporting to the Investment Committee and to provide a relative measure to gauge success, custom performance benchmarks are approved by the Board. The approved custom performance benchmarks are shown below:

Total Public Equity	- Weighted Russell 3000 Index and MSCI EAFE AC ex US Index
Domestic Equity	- S&P 500 Index (large cap stocks) - Russell 2500 Special Index (small cap stocks)
International Equity	- MSCI EAFE AC ex US Index
Total Public Debt	- Weighted LPF Salomon Large Pension Fund Index and World Government Bond Index
Domestic Debt	- Salomon Large Pension Fund Index
International Debt	- Salomon World Government Bond Index
Private Equity	- Weighted NCREIF Property Index and CPI + 12% Custom Alternative Investment Index
Real Estate	- NCREIF Property Index
Alternative Inv.	-Consumer Price Index (CPI) + 12% Custom Alternative Investment Index

Each investment manager, for domestic and international, equity and fixed income, has an individualized benchmark designed to measure their performance relative to the objective identified in their investment guidelines.

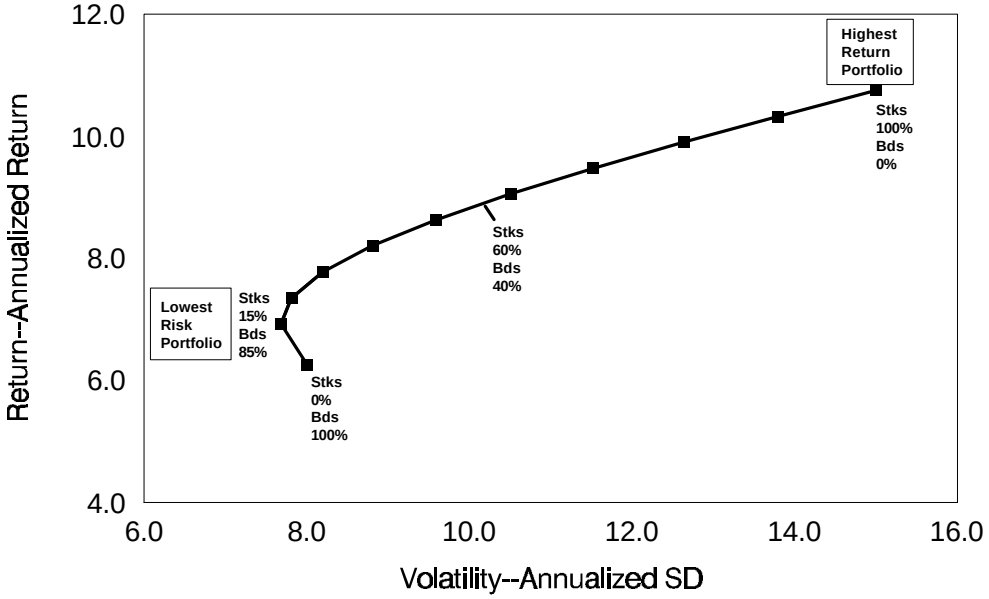
ASSET ALLOCATION

A Review of Asset Allocation

A diversified investment portfolio consists of multiple asset classes whose investment returns respond differently to varying economic scenarios. Diversified portfolios are attractive because the combination of various asset classes can reduce expected risk while maintaining expected return. Combining assets having different return patterns can produce a portfolio that has much lower volatility (risk) than any individual asset while producing returns that are competitive. Maximizing return while reducing risk increases the probability of meeting a specified return objective.

Efficient frontier analysis is a widely accepted method of analyzing the tradeoff between risk and return across portfolios having different mixes of assets. Through this quantitative technique (which relies on several critical assumptions), an optimization process identifies portfolios of assets providing the highest expected return, given a specified level of risk. The procedure continues to determine ideal portfolios at varying levels of risk until an entire range of ideal portfolios (termed an "efficient frontier") is identified below.

An Efficient Frontier for a Stock and Bond Portfolio



Asset Class	Expected Annual Return	Expected Annual Volatility
Domestic Stocks:	10.75%	15.0%
Domestic Bonds:	6.25%	8.0%
Stock-Bond Correlation:	0.30	

In selecting certain combinations of assets (such as domestic equity and fixed income) any rational investor will always consider the tradeoff between changes in return and changes in risk. At a minimum, investors should expect to receive a higher rate of return for an incremental increase in investment risk.

Each mix of assets is, in itself, a unique asset having its own return vs. risk tradeoff. As highlighted above, these asset portfolios can exhibit return patterns that differ greatly from any underlying asset. Depending on the extent of how individual assets move in relationship to each other (measured by correlation), certain mixes of assets could enhance the return-risk tradeoffs over investing in any single asset.

The curve-point in the curve in the efficient frontier chart shows when adding a certain proportion of stocks ceases to add value (simultaneously adding return and reducing risk). This point comes when stocks become 13% of the portfolio. Beyond this point, the only way to increase return is to increase risk incrementally. For those points along the line past the curve point, the only decision one has to make is how much incremental risk one is willing to accept. The only way to increase return will be to accept incremental increases in investment risk (uncertainty). The line between the curve-point and the "100% stocks" point is termed the "efficient frontier." Any point along the efficient frontier represents that unique portfolio that offers the highest return for the given amount of risk.

The Asset Allocation Process

The key goal of the asset allocation process is develop an asset allocation policy that maximizes the likelihood that an investment portfolio's assets will, over the planning horizon, fund Plan benefits.

Steps Involved in Setting Asset Allocation Policy

Overview and Planning Steps

1. Review rationale for policy.
- importance of diversification

2. Review financial condition of Plan.
- assets versus projected liabilities (balance sheet)
- projected contributions versus projected benefits

Investment Related Steps

3. Review rationale for investment asset classes in light of plan financial requirements.

4. Develop expectations for asset class investment performance (returns, risks, correlations).
5. Identify investor-specific constraints that might limit investment strategies (e.g., liquidity).
6. Create model portfolios, incorporating objectives, assumptions, and constraints.
7. Isolate investor-specific model portfolio to represent an investor's asset allocation policy.
8. Perform additional sensitivity analyses to quantify impact of specific issues.
   - adjustments to required rate of return
   - shift in financial condition of Plan due to funding

Once the rationale for undertaking an asset allocation study is understood, a review of the financial condition of the plan becomes imperative. A key component of reviewing a plan's financial condition is studying the actuarial requirements of the plan. These requirements represent the plan's long-term liabilities and, when combined with the plan's investment portfolio, constitute a pension plan's balance sheet. Understanding what factors (such as changes in interest rates, benefit structures, and plan demographics) influence these liabilities is important. Changes in these and other underlying factors may, in fact, alter a plan's liability structure. Such shifts could, in turn, impact the plan's financial condition. CalSTRS' were studied and considered as part of this asset allocation review.

Selecting Asset Classes for Portfolio Investment

As discussed earlier, there are three components required to model investment returns: (1) asset class expected returns, (2) asset class risks, and (3) correlations among asset classes. Investment consultants develop these components, which are then used to develop efficient frontiers quantitatively. CalSTRS' current long-term expected returns and risks for various assets classes range from 4.0% to 15.0% per year.

Total Return and Risk Estimates
Assumed inflation level: 3.0% per year

Asset Class	Expected Annual Return	Expected Risk (Annlzd. SD)
Cash	4.50	1.5
Domestic Bonds	6.25	8.0
Global Bonds	6.13	8.0
Domestic Stocks	10.75	15.0
International Stocks	10.50	18.0
Private Markets	12.50	16.0
Emerging Markets	14.00	30.0

These return and volatility estimates reflect several basic relationships:

1. Investors or lenders of capital require an incremental real return premium as a reward for making capital available.
2. Equity-oriented investment should, over long periods, produce return premiums that are higher than their fixed-income counterparts.
3. The private markets asset class is a combination of both real estate and alternative investments.
4. The return assumptions for the publicly-traded asset classes do not account for added value opportunities within each asset class.

Review of Asset Allocation Policy

Over the last thirteen years, CalSTRS' asset allocation policy has shifted modestly.

CalSTRS Asset Allocation Policy Trends (in %)

Asset Class	Current	1995	1993	1986
Domestic Equities	38	34	33	40
Foreign Equities	25	18	18	15
Public Equity	63	52	51	55
Realty	5	5	10	10
Venture	5	3	7	5
Total Equity	73	60	68	70
Global	0	5	1	---
Fixed-Income	26	34	30	30
Cash	1	1	1	0
Stable Assets	27	35	31	30
Total	100	100	100	100

CalSTRS' investment policy has remained consistent from an equity/stable asset allocation viewpoint. In 1986, CalSTRS had a strategic allocation of 70% equities and 30% stable assets. In 1997, CalSTRS' Board adopted a similar policy (73% equity and 27% stable assets).

Strategic Asset Allocation

The System's asset allocation strategy utilizes a design for today's needs, while anticipating the future capacity and growth of the investment portfolio. A strategic asset allocation target for public equity, private equity, liquidity, and public debt was last established in 1997 after reviewing a comprehensive asset allocation analysis completed by Pension Consulting Alliance. In conjunction with the strategic target, a range for each asset category has been established to provide flexibility designed to reduce rebalancing costs and allow flexibility to adapt to changing market conditions. To control the risk and return relationship each asset category must be rebalanced to the strategic target occasionally. Rebalancing latitude is important and can significantly affect the performance of the portfolio. Blind adherence to narrow ranges increases transaction costs without a documented increase in performance. A rebalancing range that is too wide may cause undesired changes in the asset allocation. The range is plus or minus three percent around the strategic target for the major asset categories (domestic equity, international equity, and fixed income). The range is plus or minus two percent around the strategic target for the other asset categories (private equity and cash). The two or three percent range refers to the market value of the total investment portfolio.

CalSTRS Policy Target and Ranges

	Strategic Target	Range
Domestic Equity	38%	35% to 41%
International Equity	25%	22% to 28%
Total Public Equity	63%	57% to 69%
Private Equity*	10%	8% to 12%
Total Equity	73%	68% to 77%
Debt	26%	23% to 29%
Cash	1%	0% to 3%
Total Public Debt	27%	23% to 32%
Total Asset Allocation	100%	

- Please note that the allocated not funded portion of the private equity will be invested in the S&P 500 Indexed portfolio. This amount will be shown as private equity – S&P 500 Index.

INVESTMENT STRUCTURE

Investment structure guides and directs present and future investment decisions in a prudent manner. In the preparation of the investment structure a variety of issues were addressed including: Investment related issues addressed will included:

1. Active vs passive management including the relative percentage of each type. The relative amount of active and passive management

2. The number and types of internal and external managers. The relative amount of internal and external management

3. The appropriate direct and indirect costs of each asset category

4. The appropriate reporting standards and time horizons

ASSET ALLOCATION STRUCTURE

1. Based on academic studies, it has been determined that 91% of the total return is attributable to the asset allocation decision. Consequently, each asset category shall remain within the tactical range approved in the strategic asset allocation adopted by the Board.

2. Control of the cash flow is critical to the success of long term investment strategies. Estimated cash flows shall be provided to the Investment Committee annually.

3. Each quarter month a report from the Chief Investment Officer will be completed complete a report identifying the salient aspects of the investments including a section on compliance with approved asset allocation targets policies.

EQUITY STRUCTURE

1. The domestic equity portfolio will be managed using both passive (80% target) and active (20% target) strategies. The passive component will may have both internal and external managers. The active component will be managed externally. The number of active domestic equity managers is limited to sixteen by the Investment Committee.

2. The non-U.S. equity markets are assumed to be more inefficient allowing active management to add value. The target will be an equal amount of active management (50%) and passive management (50%) strategies. Emerging markets will be utilized to enhance return and diversification. The passive component may have both internal and external managers. The active component will be managed externally. All non-U.S. equity will be managed externally

with The number of active non-U.S. equity managers is limited to sixteen by the Investment Committee.

FIXED INCOME STRUCTURE

1. The fixed income portfolio shall be comprised of investment grade securities using an enhanced indexing strategy. The internally managed portfolio will emphasize tracking the risk characteristics of the performance benchmark.

2. Cash reserves Short term fixed income, including the cash portion of equity portfolios, shall be managed internally with emphasis on safety and liquidity. The portfolio shall be comprised of investment grade securities, A1/P1 rated short term debt, and other appropriate securities as approved in the policies and procedures.

ALTERNATIVE INVESTMENT STRUCTURE

1. The alternative investment portfolio will be comprised of limited partnerships and co-investments focusing on commitments to domestic venture, domestic buyout, and international buyout partnerships as identified in the Alternative Investment policy. The alternative investment advisor and staff will analyze each partnership and conduct appropriate due diligence with the objective of achieving upper quartile performance, as identified by Venture Economics.

2. Private equity investments have substantial fees and costs, consequently, emphasis will be placed on negotiating, monitoring, and controlling the direct and indirect costs of each limited partnership investment.

REAL ESTATE STRUCTURE

1. The real estate portfolio will be comprised of direct real estate investments and commingled funds (opportunistic funds) with adopted targets of 75 50% to low risk, 25% to moderate risk and 25% moderate to high risk investments.

2. To more closely align the interests of the plan sponsor and real estate manager, emphasis will be placed on negotiating, monitoring, and controlling the cash flow (both income and expense) associated with each